VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTH CENTRAL REGIONAL OFFICE

FACT SHEET
FOR PROPOSED PERMITTING ACTION
UNDER 9 VAC 5 Chapter 80 Article 1 (TITLE V-CLEAN AIR ACT)

APPLICANT:

VA-30401 AIRS ID 51-117-0001
Burlington Industries, Inc.
P. O. Box 788
Clarksville, VA 23927

FACILITY LOCATION:

899 Burlington Ind. Drive, Mecklenburg County
UTM Coordinates are ZONE: 17 EASTING: 720.2 km NORTHING: 4054.1 km

FACILITY DESCRIPTION:

Burlington Industries, Inc. is a manufacturer of wool, wool blend, and specially woven fabrics covered by Standard Industrial Classification (SIC) Codes 2231 and 2262. This facility receives the raw wool and converts it to fabric. Processing includes scouring, carding, combing. weaving, washing greige cloth, dyeing, drying, carbonizing, and finishing. The facility has the potential to operate twenty-four (24) hours per day, seven (7) days per week, fifty-two (52) weeks per year.

EMISSIONS SUMMARY:

PLANTWIDE EMISSIONS SUMMARY [TONS PER YEAR]	
CRITERIA POLLUTANTS	1999 ACTUAL EMISSIONS (tons)
Particulate Matter (PM10)	41.8
Nitrogen Oxides (NOx)	37.4
Sulfur Dioxide (SO2)	74.83
Carbon Monoxide (CO)	10.8
Volatile Organic Compounds (VOC)	109.2
HAZARDOUS AIR POLLUTANTS	1999 ACTUAL EMISSIONS
1,1,1 Trichloroethane	6.2
1,2,4 Trichlorobenzene	10.6
Glycol Ethers	1.2
Ethylene Glycol	0.5

TITLE V PROGRAM APPLICABILITY BASIS:

This facility has the potential to emit greater than 100 tons per year of NO_x, SO_2, and VOC and greater than 10 tons per year of 1,2,4 trichlorobenzene. Due to this facility's potential to emit over 100 tons per year of a criteria pollutant and 10/25 tons per year of HAPs, Burlington Industries, Inc. is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 9 VAC 5 Chapter 80 Article 1.

LEGAL AND FACTUAL BASIS FOR DRAFT PERMIT CONDITIONS:

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the Commonwealth of Virginia Federal Operating Permit Regulations for the purposes of Title V of the Federal Clean Air Act (9 VAC 5 Chapter 80 Article 1), and underlying applicable requirements in other state and federal rules. Applicable requirement means all of the following as they apply to emission units in a Title V source:

a. Any standard or other requirement provided for in the State Implementation Plan or the Federal Implementation Plan, including any source-specific provisions such as consent agreements or orders.

b. Any term or condition of any preconstruction permit issued pursuant to 9 VAC 5-80-10, Article 8 (9 VAC 5-80-1700 et seq.) of this part or 9 VAC 5-80-30 or of any operating permit issued pursuant to 9 VAC 5 Chapter 80 Article 5, except for terms or conditions derived from applicable state requirements or from any requirement of these regulations not included in the definition of applicable requirement.

c. Any standard or other requirement prescribed under these regulations, particularly the provisions of 9 VAC 5 Chapter 40 (9 VAC 5-40-10 et seq.), 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) or 9 VAC 5 Chapter 60 (9 VAC 5-60-10 et seq.), adopted pursuant to requirements of the federal Clean Air Act or under ' 111, 112 or 129 of the federal Clean Air Act.

d. Any requirement concerning accident prevention under § 112(r)(7) of the federal Clean Air Act.

e. Any compliance monitoring requirements established pursuant to either § 504(b) or § 114(a)(3) of the federal Clean Air Act or these regulations.

f. Any standard or other requirement for consumer and commercial products under § 183(e) of the federal Clean Air Act.

g. Any standard or other requirement for tank vessels under § 183(f) of the federal Clean Air Act.

h. Any standard or other requirement in 40 CFR Part 55 to control air pollution from outer continental shelf sources.

i. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the federal Clean Air Act, unless the administrator has determined that such requirements need not be contained in a permit issued under this article.

j. With regard to temporary sources subject to 9 VAC 5-80-130, (i) any ambient air quality standard, except applicable state requirements, and (ii) requirements regarding increments or visibility as provided in Article 8 (9 VAC 5-80-1700 et seq.) of this part.

k. Any standard or other requirement of the acid deposition control program under Title IV of the Clean Air Act or the regulations promulgated thereunder.

l. Any standard or other requirement governing solid waste incineration under § 129 of the Clean Air Act.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 9 VAC 5 Chapter 80 Article 1 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the state but is not federally-enforceable is identified in the draft Title V permit as such.

BOILERS

Particulate Emissions

Particulate emissions for BL1, BL2, BL3, BL5, BL6 were limited by a DAPC letter dated January 24, 1980. Total existing boiler capacity for this letter was 464 MMBtu/hr. Therefore the particulate emission factor is 0.222 lb/MMBtu per 9 VAC 5-40-900 A.1.b.

$PM = 1.0906 \times H^{-0.2594} = 1.0906 \times (464)^{-0.2594} = 0.222$ lb/MMBtu
where H is the sum of the total heat input capacity of all existing boilers in MMBtu/hr

Note: The particulate emissions were apportioned among the boilers as shown in Table 1 (under Allowable)

Table 1

Boiler	Boiler Capacity (MMBtu/hr	Emission factor Lb PM/MMBtu	PM Control % Eff.	Emissions (lb/hr)	Allowable (lb/hr)
BL1	90	0.153	N/A	13.8	16.2
BL2	90	0.153	N/A	13.8	16.2
BL3	60	2.28	90	13.7	15.8
BL5	50	0.153	N/A	7.6	9.0
BL6	174	2.28	90	39.7	45.7
Total	464			88.6	102.9

The particulate emission calculation demonstration for the boilers are as follows:

#6 fuel oil (SCC 10300402) $9.19*2.5(\%S)$ lb PM $\div \frac{150{,}000 \text{ Btu/gal} \times 1000 \text{ gal}}{1{,}000{,}000 \text{ Btu}} = \frac{0.153 \text{ lb PM}}{1{,}000{,}000 \text{ Btu}}$

natural gas (SCC 10300602) 7.6 lb PM $\div \frac{1{,}000 \text{ Btu/ft}^3 \times 1{,}000{,}000 \text{ ft}^3}{1{,}000{,}000 \text{ Btu}} = \frac{0.0076 \text{ lb PM}}{1{,}000{,}000 \text{ Btu}}$

propane (SCC 10201002) 12 lb PM $\div \frac{91 \text{ MBtu/gal} \times 1000 \text{ gal}}{1{,}000{,}000 \text{ Btu}} = \frac{0.132 \text{ lb PM}}{1{,}000{,}000 \text{ Btu}}$

coal (SCC 10200204) 66 lb PM $\div \frac{14.46 \text{ Mbtu/lb} \times 2000 \text{ lb}}{1{,}000{,}000 \text{ Btu}} = \frac{2.28 \text{ lb PM}}{1{,}000{,}000 \text{ Btu}}$

Monthly records of the consumption of coal, #6 fuel oil and propane/natural gas usage in the boilers will be used to demonstrate compliance the particulate emissions limits. Calculations demonstrate that these boilers do not exceed the allowable particulate emissions limitation as apportioned and no further periodic monitoring for particulate emissions is required. However, a stack test for particulate emissions and concurrent VEE from boiler BL6 will be required once per permit term.

Allowable particulate emissions for boiler BL7 are calculated per 9 VAC 5-50-10 D. as follows:

$$PM = 1.0906 \times H^{-0.2594} = 1.0906 \times (17)^{-0.2594} = 0.523 \text{ lb/MMBtu}$$
or 8.9 lb/hr

SO_2 Emissions

SO_2 emissions are limited by an agreement between Burlington and the Department of Air Pollution Control that was signed November 19,1991.

Sulfur content of fuel and fuel throughput will be used to demonstrate compliance with the SO_2 emission limits.

Opacity

Monitoring of opacity will be required of the source at least one time per week, when the boiler(s) are operating, observe for the presence of visible emissions from the boiler stacks. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the boiler(s) have not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

It should be noted that the majority of the steam used at this facility is provided by Mecklenburg Cogeneration Facility

Low Pressure Dye Becks

Burlington has 39 low pressure dye becks of various sizes. They were issued a State Operating Permit on November 3, 2000 to limit their VOC emissions to a maximum of 39.0 tons per year for dye becks 531, 536, 537, 549, 550, 519, 532, 533, 523, 534, 535, and 512. They are required to keep records to include, but are not limited to the monthly and annual VOC emissions to verify compliance with the emission limitation. Annual emissions shall be calculated monthly as the sum of each consecutive 12 month period.

Tenter Frames/Dryers

Tenter Frames (TF1 and TF3) – These are existing Famatex Dryer/Heat Set, 4 MMBtu/hour units capable of processing 3,600 linear yards per hour (68" to 72" wide). Particulate emissions from each of the tenter frames are limited to the process weight rate equation per 9 VAC 5-40-260C. The calculations are shown in Attachment 1. The results of a test performed in North Carolina on similar equipment (without controls) are used to demonstrate compliance with the allowable limits. Additionally this equipment has an ESP/Smog Hog for opacity control as needed.

Kenyon Tenter Frame (TF4) and Relaxed dryer (DR16)

TF4 is an LPG/natural gas fired unit (6.3 MMBtu/hr) and has a capacity of 5,000 yards per hour. DR16 is a steam heated dryer rated at 2,100 yards per hour. These units were permitted on April 14, 1995.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the units are operating. They are to observe for the presence of visible emissions from the stacks. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings,

and any corrective actions. If the units have not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Monfort Model 6F Tenter Frame (TF5)

This 11.5 MMBtu/hr unit is rated at 3,600 yards per hour. The approved fuels are natural gas and propane. The unit is limited to 8,200 hours per year. This unit was permitted on February 17, 2000.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the unit has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Monfort Tenter Frame (TF6)

This 11.5 MMBtu/hr unit is rated at 4,800 yards per hour. The approved fuels are natural gas and propane. This unit was permitted on December 23, 1996.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the unit has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Bruckner Dryer/Heat Set Tenter Frame (TF7)

This unit is heated indirectly by either Eclipse boiler (BL7 or BL8) and has a capacity of 3,600 yards per hour. This unit was permitted on February 21, 1995. Allowable particulate emissions are based on the process weight rate equation in 9 VAC 5-40-260C per 9 VAC 5-50-10. The calculations are shown in Attachment 1. The results of a test performed in North Carolina on similar equipment (without controls) are used to demonstrate compliance with the allowable limits. Additionally, this unit has a JHK fume oxidizer to control opacity as needed.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible

emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the unit has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Bruckner Dryer/Heat Set Tenter Frame (TF8)

This unit is heated indirectly by either Eclipse boiler (BL7 or BL8) and has a capacity of 3,600 yards per hour. This unit was permitted on April 5, 1976. Allowable particulate emissions are based on the process weight rate equation in 9 VAC 5-40-260C. per 9 VAC 5-50-10. The calculations are shown in Attachment 1. The results of a test performed in North Carolina on similar equipment (without controls) are used to demonstrate compliance with the allowable limits. Additionally, this unit has an American Air Filter ESP for control of opacity as needed.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the unit has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Bruckner Dryer/Heat Set Tenter Frame (TF9)

This 4.5 MMBtu/hr unit is rated at 2,100 yards per hour. This unit can fire LPG or natural gas. This unit was permitted on April 5, 1976. Allowable particulate emissions are based on the process weight rate equation in 9 VAC 5-40-260C. per 9 VAC 5-50-10 The calculations are shown in Attachment 1. The results of a test performed in North Carolina on similar equipment (without controls) are used to demonstrate compliance with the allowable limits. Additionally, this unit has a JHK fume oxidizer for control of opacity as needed.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the unit has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Heat Set Dryers/Carbonizers (DR10, DR14, DR17)

These dryers use steam as the source of heat to dry/heat set the fabric. The fabric does not get as hot as with tenter frames. Tenter frames operate in the 350º to 380º F temperatures range and the dryers operate in the 250º to 280º F range. Since, the fabric will not get as hot, it is expected that less of the weaving oils will be driven off the fabric than with tenter frames and therefore there will be less emissions. Driers DR14 and DR17 are also classified as carbonizers. These units also have a station for the application of a 3% solution of sulfuric acid to the fabric to carbonize the plant matter in the fabric.

Dryer DR14 was installed prior to 1992. Dryers DR10 and DR17 were installed in the 80's. Allowable particulate emissions are based on the process weight rate equation in 9 VAC 5-40-260C. per 9 VAC 5-50-10. The calculations are shown in Attachment 1.

Recordkeeping for particulate and VOC emissions will be required. Monitoring of opacity will be required of the source at least one time per week, when the units are operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If a unit has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Flame Singeing (FS22A)

Flame singeing is a process in which fabric is passed through a flame and then the burnt fibers are removed with a brush. This unit has a brush before the flame singeing and after the flame singing. Hours of operation and monitoring of opacity will be required of the source at least one time per week, when the flame singer is operating. They are to observe for the presence of visible emissions from the singer stacks. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective actions. If the flame singer has not operated for any period during the week, this fact shall be noted in the log, and that the visible emission observation was not required.

Wool Combing

The only emissions from this process are VOCs. Burlington is to keep records and calculate VOC emissions.

Final Inspection

In this process the fabric is passed over an inspection table where it is scanned for stains. Burlington uses a spot cleaner to remove stains. Burlington is to keep records of annual amount of cleaner used and calculate volatile organic compound and hazardous air pollutant emissions.

Carver Greenfield Pretreatment

This system removes and recovers AMSCO 140 (mineral spirits) from the wastewater through an oil/water separator. Emissions are calculated by mass balance. Some AMSCO 140 is lost to wastewater, landfilled solids, and lanolin shipped offsite. Source will be required to calculate annual VOC emissions.

WasteWater Treatment

Burlington will record the amounts of the various materials that are used and volatilize from the wastewater. Source will be required to calculate annual (VOC and HAP) emissions as the sum of each consecutive twelve month period from the wastewater.

REQUEST FOR VARIANCES OR ALTERNATIVES:

None

COMMENT PERIOD:

The public notice appeared in the News Progress on October 17, 2001.
Beginning Date: October 17, 2001
Ending Date: November 16, 2001
All written comments should be addressed to the following individual and office:

Keith Sandifer
Senior Environmental Engineer
Department of Environmental Quality
South Central Regional Office
7705 Timberlake Road
Lynchburg, VA 24502
Phone: (434) 582-5120 Fax: (434) 582-5125

PROCEDURE FOR REQUESTING PUBLIC HEARING:

During the public comment period any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for a public hearing shall be in writing to the above address and shall state the nature of the issues proposed to be raised in the hearing. The Director shall grant such a request for a hearing if he concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Attachment 1
Burlington -
Clarksville
Reg. No.: 30401

Unit	Capacity yds/hr	Process Weight P lb/hr	Allowable PM lb/hr	Estimated Potential PM lb/hr	Type of Unit
TF1	3600	5472	8.05	5.31	Tenter Frame
TF3	3600	5472	8.05	5.31	Tenter Frame
TF7	3600	5472	8.05	5.31	Tenter Frame
TF8	3600	5472	8.05	5.31	Tenter Frame
TF9	5000	7600	10.03	7.37	Tenter Frame
DR10	4000	6080	8.64	5.90	Steam Heated Dryer
DR14	3500	5320	7.90	5.16	Steam Heated Dryer
DR15	3500	5320	7.90	5.16	Steam Heated Dryer
DR17	3500	5320	7.90	5.16	Steam Heated Dryer

fabric weight per yd =	0.77 lb/yd	Linear
Wet pick up =	0.75 lb/yd	Linear

Allowable PM is based on 9 VAC 5-40-260 $E = 4.1P^{0.67}$

Particulate matter test results (dated Sept. 12, 1997) from similar unit at NC facility Unit did not have any emissions control devices installed. Note: Linear yards are used. Fabric width = 68 to 72 inches. Capacity =	32 yd/min =	1920 yd/hr
At 32 yd/min particulate emissions were =		2.831 lb/hr
Fabric weight (linear) = Wet pick up =		12.25 oz/yd 70 %

Estimated = (Capacity/capacity of test unit) X test unit emissions